

IN THE CLAIMS:

Please amend claims 16 and 17 (twice amended).

Claims 1, 4, 8, 12 and 14 remain as currently amended
in Applicant's May 26, 2004 Amendment.

1. (Currently Amended). A system for downloading firmware from a source module onto a controller of a storage medium with minimal latency of operation comprising:

(a) first source software means providing SCSI firmware for a disk drive and servo SCSI firmware for positioning said disk drive;

(b) a central processing unit having software programmable selection means for choosing single [[two-]] dimensional array means or dual two-dimensional array means for temporary storing said SCSI firmware prior to placement onto a target peripheral controller for said disk drive;

(c) means for temporarily storing different versions of said firmware until said target controller has been accessed to identify the proper version of firmware required;

(d) means for checking the pre-existing firmware in said target controller to determine whether an updated firmware version will be required for a subsequent download.

2. (Cancelled).

3. (Cancelled).

4. (Currently Amended). A system for downloading SCSI firmware and SCSI servo firmware in a rapid fashion onto a target control module, said system comprising:

(a) a source software means for said SCSI firmware and SCSI servo firmware, said source software means including:

(a1) control data received from tape, disk, CD-ROM or the World Wide Web;

(b) central processing means for receiving said SCSI firmware and SCSI servo firmware from said source software means and utilizing a local memory means for separate storage areas for said SCSI firmware and for said servo SCSI firmware wherein said central processing means includes:

(b1) software means for recognizing the number of bytes of said SCSI firmware and SCSI servo firmware to be downloaded;

(b2) means for selecting a buffer array size which most closely ~~approximates~~ accommodates said recognized number of bytes to be downloaded;

(b3) software inquiry means to said target controller to acquire identification information;

(b4) software means to determine, from said identification information, what version of said SCSI firmware and SCSI servo firmware will be downloaded to said target controller;

(c) connection means from said local memory means over to a selected one of a plurality of disk drives for temporary storage;

(d) peripheral controller means for loading said SCSI firmware into a first flash PROM and for loading said servo SCSI firmware into a second servo flash PROM;

(e) means to Write said SCSI firmware from said first flash PROM and Write said SCSI servo firmware from said second flash PROM onto a targeted peripheral controller for a disk unit.

5. (Cancelled).

6. (Cancelled).

7. (Cancelled).

8. (Currently Amended). A system for downloading the appropriate SCSI firmware and SCSI servo firmware onto a target module controller and overcoming the normal capacity limitations of temporary buffer storage comprising:

(a) software source means for providing SCSI firmware and SCSI servo microcode firmware for a target controller;

(b) processor means having means for providing first and second two-dimensional buffer array means for receiving and buffering said SCSI firmware and SCSI servo firmware destined for said target controller without adding any additional hardware;

(c) software control means for transferring said SCSI firmware and servo firmware onto a targeted peripheral controller for a disk unit;

(d) a library exported interface ~~(USERMAINTREQUEST)~~ for issuing a download command request and an inquiry command to query the said target controller, said inquiry command including:

(d1) means to check and compare the pre-existing firmware in said target controller to determine whether new updated firmware is required;

(e) software means to access the appropriate firmware release numbers and servo release numbers to enable a selection of the appropriate[[ly]] ~~proper~~ SCSI firmware and SCSI servo firmware;

(f) software selection means for selecting the appropriate ~~[[size]]~~ number of array means of said first and second two-dimensional buffer array means to most efficiently store said selected ~~proper~~ firmware;

(g) means for checking to indicate that ~~the proper~~ said selected SCSI firmware and SCSI servo firmware has been downloaded to the proper target controller module.

9. (Cancelled).

10. (Cancelled).

11. (Cancelled).

12. (Currently Amended). A software method of selecting and downloading the appropriate SCSI firmware and servo firmware for a selected target control module comprising the steps of:

(a) providing a plurality of storage media for holding different versions of SCSI firmware appropriate for different types of target control modules;

(b) utilizing a DFAST utility program for initiating a firmware download to a target control module, said DFAST program functioning to download firmware to SCSI devices;

(c) inquiring as to the identity and firmware requirements of a selected target control module said inquiring including the step of:

(c1) checking the pre-existing firmware in said target controller to determine whether or not said pre-existing firmware requires any updating from the selected firmware on the selected storage media;

(d) fetching, by said DFAST utility program, [[of]] the appropriate firmware file from said storage media;

(e) selecting a single or a double two-dimensional buffer array ~~appropriate to~~ which accommodates the byte count of said appropriately selected firmware for temporary storage;

(f) downloading the selected firmware by said DFAST utility program onto said target control module.

13. (Cancelled).

14. (Currently Amended). A system utilizing software means for rapid downloading, in one command cycle, of SCSI firmware and SCSI servo firmware into a target control module, comprising:

(a) first software means for initiating a SCSI Inquiry Command to said target control module via a Command Descriptor Block;

(b) second software means to query a designated target control module with information from a Page Code Field;

(c) third software means for enabling access to and acquiring a firmware page number and a firmware version number for said target control module;

(d) means for downloading said SCSI firmware and SCSI servo firmware [[data]] using selected [[sizes]] units of first and second two-dimensional buffer arrays;

(e) means for passing said SCSI firmware [[data]] onto said target control module;

(f) means for sensing when said SCSI Inquiry Command initiates an illegal request.

15. (Cancelled).

16. (Currently Amended). A specialized download operation method to download firmware which also includes servo firmware to a SCSI Target via a peripheral controller comprising the steps of:

- (a) downloading firmware to a designated SCSI disk drive device;
- (b) entering the name of the firmware file involved to enable said firmware file to be accessed from memory;
- (c) fetching said firmware file;
- (d) deciding whether [[YES]] or not [[NO]] to download said firmware file to said peripheral controller and if the decision [[YES]] is made to download, then;
- (e) entering the controller ID to select the appropriate controller;
- (f) assigning the selected controller for firmware reception;
- (g) determining that said selected controller has been assigned for utilization[[,]]; ~~and if said controller has been assigned for utilization then;~~
- (h) reading out the attributes of said selected controller;
- (i) comparing the firmware header file with the SCSI target attributes to see if the header file matches the target attribute, and if said header file matches said target attributes, (YES), then;

- (j) determining if the said firmware file is still to be downloaded, and if the determination is made that said firmware file is still to be downloaded, ~~{YES}~~, then;
- (k) setting up the buffer arrays for use in the download;
- (l) utilizing the download to a first two-dimensional buffer array;
- (m) issuing a Write Buffer command indicating the total bytes of data involved;
- (n) issuing a Test Unit Ready Command;
- (o) reading attributes and displaying attributes of the data involved;
- (p) issuing an inquiry command;
- (q) displaying the inquiry data for said servo firmware to control tracking of the disk drive of the selected peripheral controller;
- (r) downloading said firmware file to a selected controller.

17. (Currently Amended). The method of claim 16 wherein said step (d) indicates a decision not to download said firmware file to said peripheral controller, decision is NO, which then step (d) includes the steps of:

(dn1) deciding whether to load or not to download said firmware to the target device, and after deciding [[YES]] to download said firmware to said target device, then;

(dn2) entering said device ID;

(dn3) assigning the selected target device;

(dn4) reading said selected device attributes;

(dn5) comparing the header file with said target attributes for a match, and when [[if]] a match occurs, ~~(YES)~~, then;

(dn6) setting up an adequate number of two-dimensional buffer arrays for a download;

(dn7) inquiring about disk servo data to compare servo header firmware with target servo data for a match, and [[if]] when a match occurs, ~~(YES)~~, then;

(dn8) downloading said servo header firmware to said buffer arrays;

(dn9) checking if said servo header firmware is greater than 393,216 bytes and if said servo header firmware is greater than 393,216 bytes, then;

(dn10) utilizing said first buffer array of said two-dimensional array;

(dn11) issuing a sequence of Write Buffer commands to handle 8192 bytes of data for each command;

(dn12) utilizing said second two-dimensional buffer array for downloading 8192 bytes for each Write Buffer Command;

(dn13) verifying that all of the bytes have been downloaded;

(dn14) checking to see that the buffer array download has been completed;

(dn15) reading a Test Unit Command to recognize when a selected module is ready to receive data;

(dn16) reading the attributes of said Test Unit;

(dn17) issuing an Inquiry Command to said target disk servo device;

(dn18) downloading said servo firmware
to said target disk servo device.